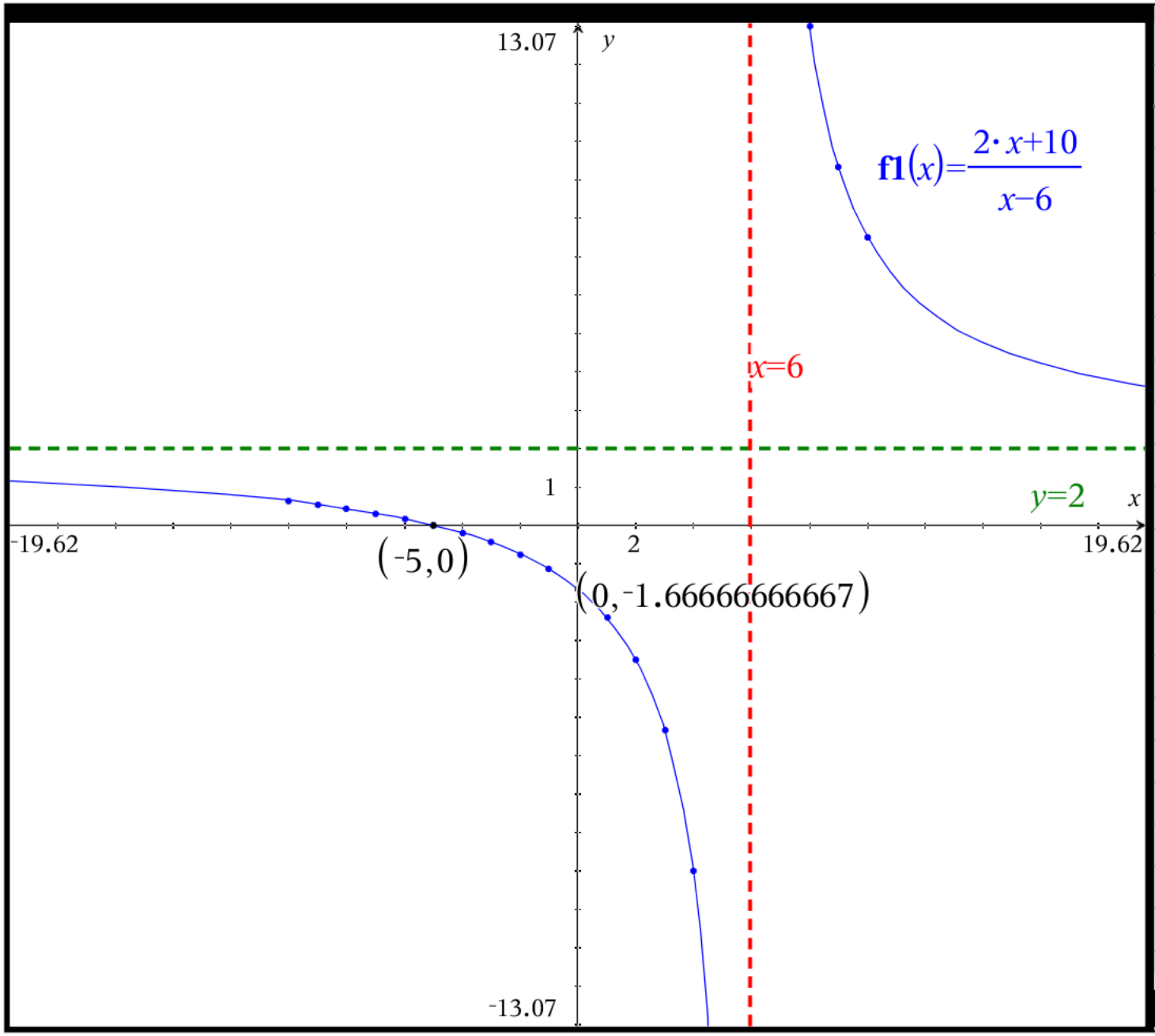


	A x_1	B y_1	C
=		=1.*f1(x_1	
1	-10	0.625	
2	-9	0.53333...	
3	-8	0.42857...	
4	-7	0.30769...	
5	-6	0.16666...	
6	-5	0.	
7	-4	-0.2	
8	-3	-0.4444...	
9	-2	-0.75	
10	-1	-1.1428...	
11	0	-1.6666...	
12	1	-2.4	
13	2	-3.5	
14	3	-5.3333...	
15	4	-9.	
16	5	-20.	
17	6	#UNDEF...	
18	7	24.	
19	8	13.	
20	9	9.33333...	
21	10	7.5	

A1 -10

$f(x)=\frac{2x+10}{x-6}=\frac{2\cdot(x+5)}{x-6}$

x intercept (−5,0)

HOW? Set numerator = 0 and solve for x

y intercept $(0,\frac{-10}{6})=(0,\frac{-5}{3})$

HOW? Set x = 0 and evaluate f(0)

vertical asymptote at x =6

HOW? Set denominator = 0 and solve for x

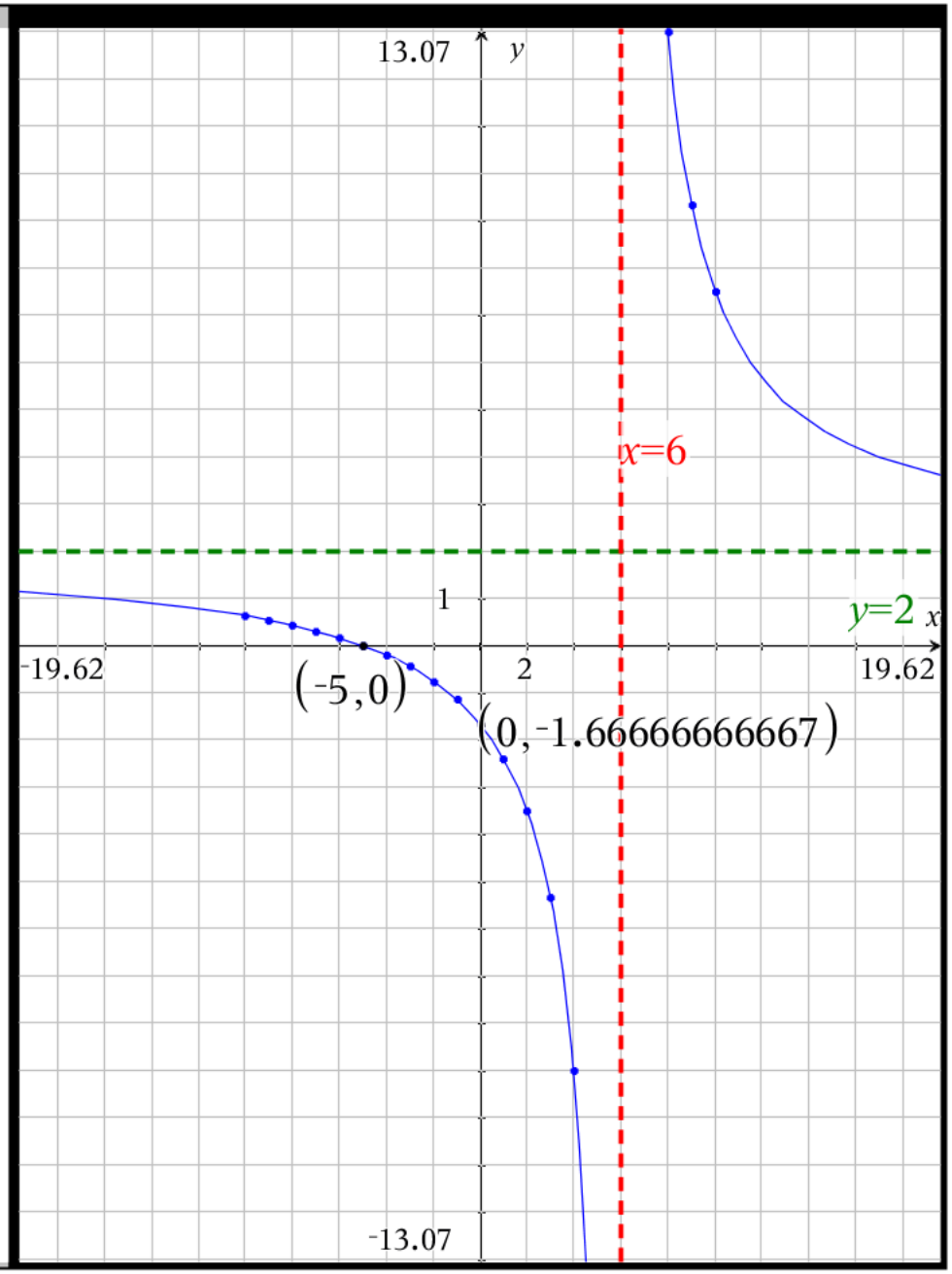
horizontal asymptote at y = 2

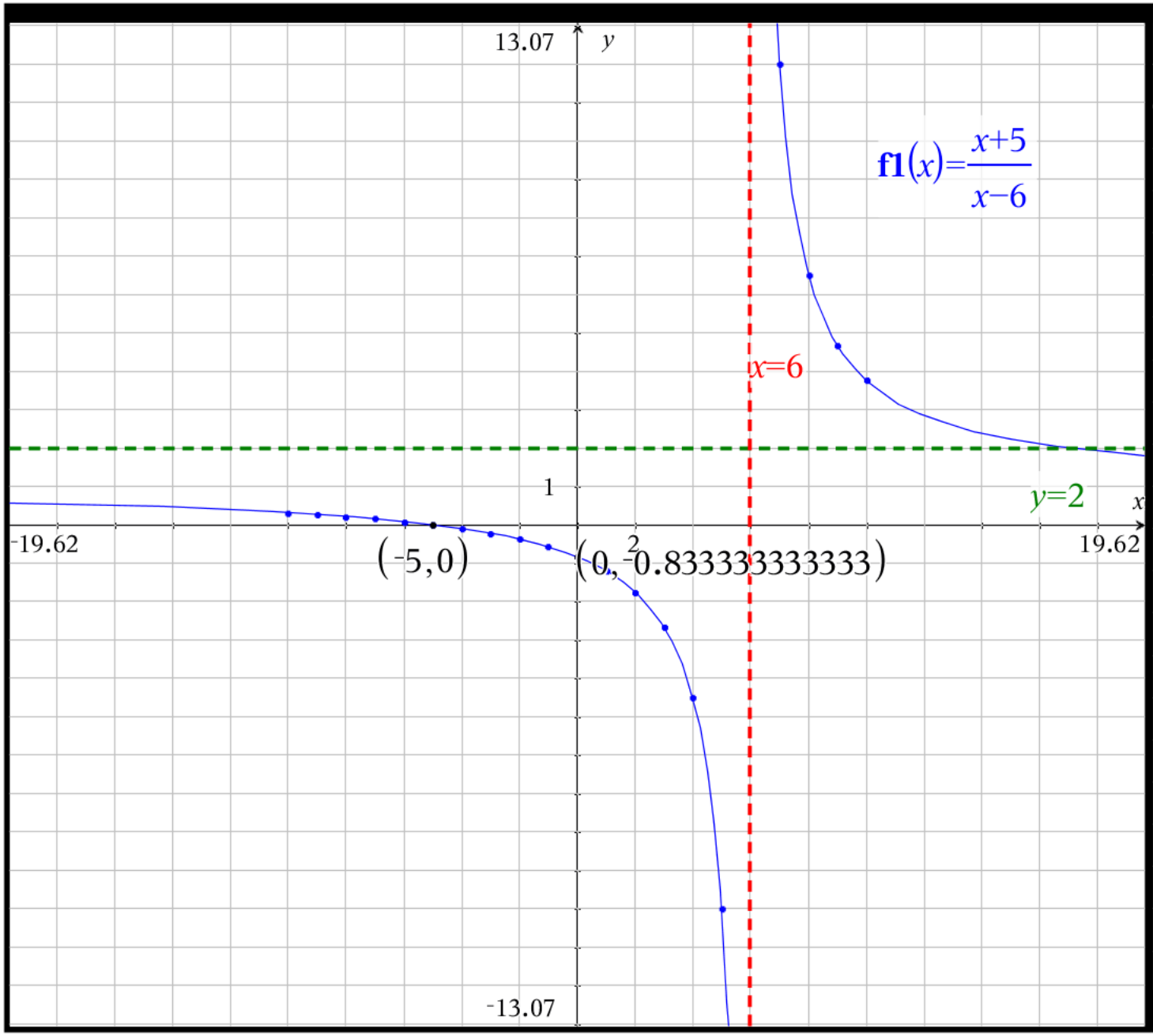
HOW?

Method 1) Lead coefficient over lead coefficient

Method 2) Division quotient

Method 3) Synthetic division quotient





	A x_1	B y_1	C
=		=1.*f1(x_1	
1	-10	0.3125	
2	-9	0.26666...	
3	-8	0.21428...	
4	-7	0.15384...	
5	-6	0.08333...	
6	-5	0.	
7	-4	-0.1	
8	-3	-0.2222...	
9	-2	-0.375	
10	-1	-0.5714...	
11	0	-0.8333...	
12	1	-1.2	
13	2	-1.75	
14	3	-2.6666...	
15	4	-4.5	
16	5	-10.	
17	6	#UNDEF...	
18	7	12.	
19	8	6.5	
20	9	4.66666...	
21	10	3.75	

A1 -10

$g(x)=\frac{x+5}{x-6}$

x intercept (−5,0)

HOW? Set numerator = 0 and solve for x

y intercept $(0,\frac{-5}{6})$

HOW? Set x = 0 and evaluate g(0)

vertical asymptote at x =6

HOW? Set denominator = 0 and solve for x

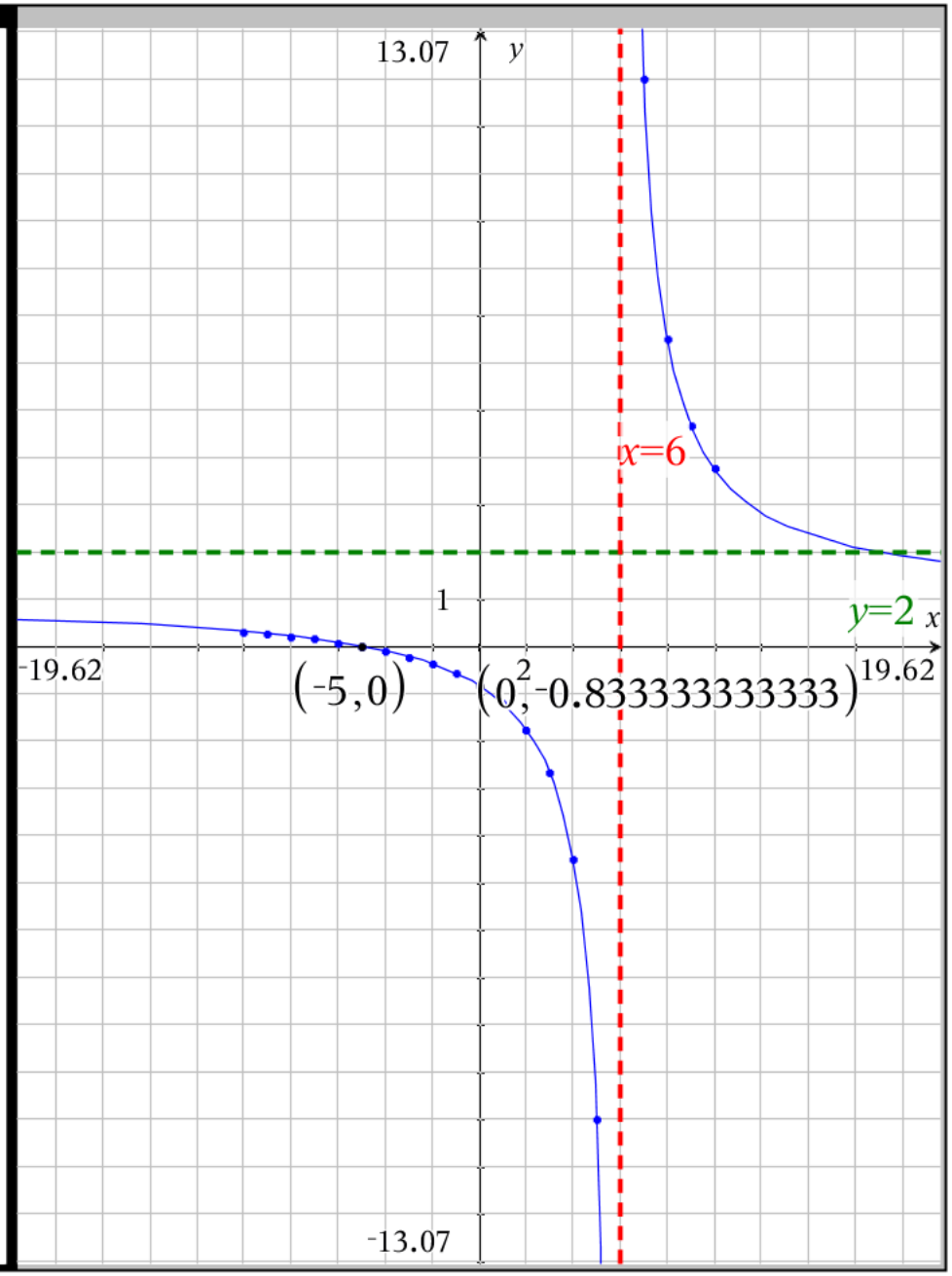
horizontal asymptote at y = 1

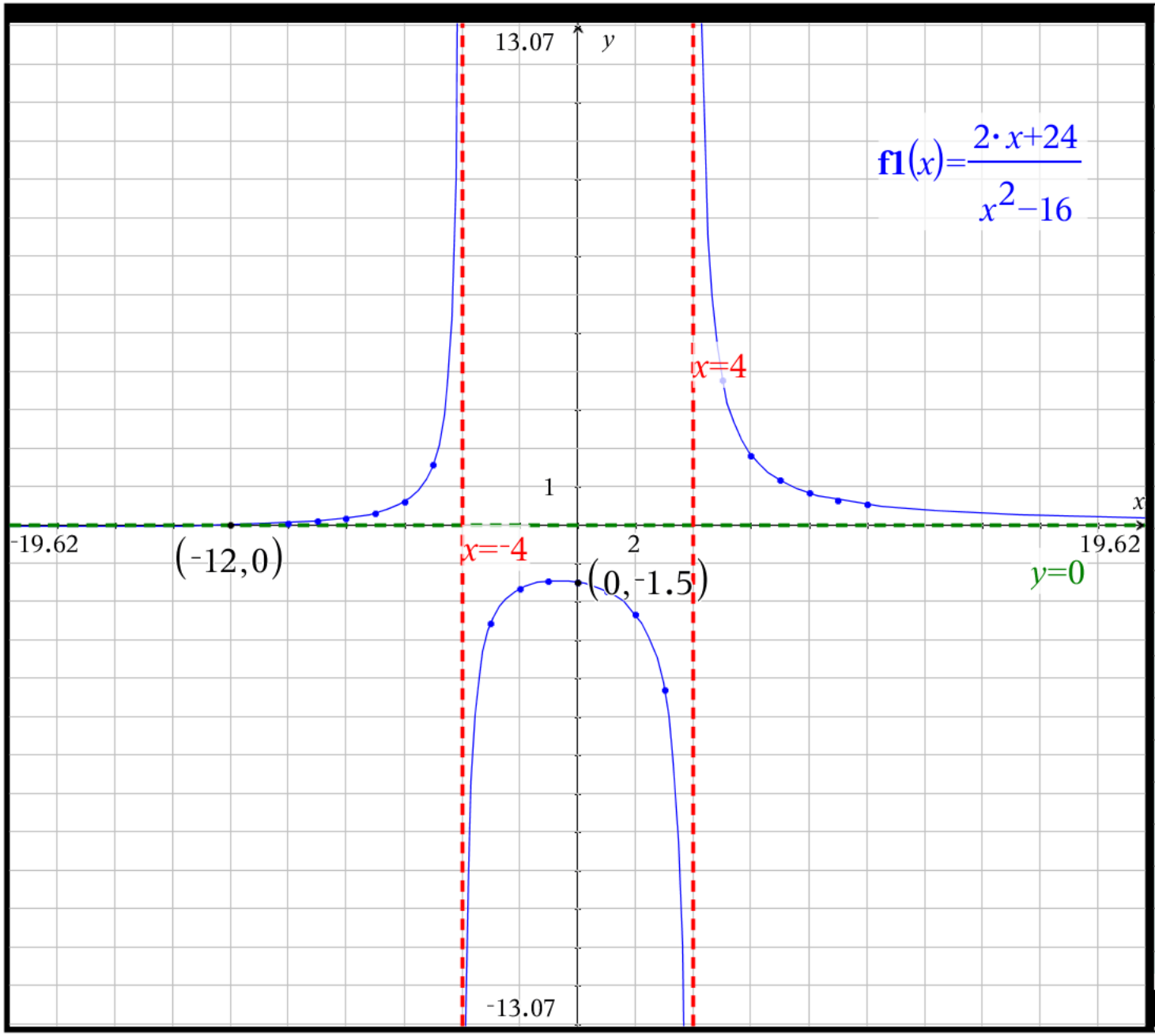
HOW?

Method 1) Lead coefficient over lead coefficient

Method 2) Division quotient

Method 3) Synthetic division quotient





	A x_1	B y_1	C
=		=1.*f1(x_1	
1	-10	0.04761...	
2	-9	0.09230...	
3	-8	0.16666...	
4	-7	0.30303...	
5	-6	0.6	
6	-5	1.55555...	
7	-4	#UNDEF...	
8	-3	-2.5714...	
9	-2	-1.6666...	
10	-1	-1.4666...	
11	0	-1.5	
12	1	-1.7333...	
13	2	-2.3333...	
14	3	-4.2857...	
15	4	#UNDEF...	
16	5	3.77777...	
17	6	1.8	
18	7	1.15151...	
19	8	0.83333...	
20	9	0.64615...	
21	10	0.52380	

A1 -10

$$h(x)=\frac{2x+24}{x^2-16}=\frac{2(x+12)}{(x+4)(x-4)}$$

x intercept (−12,0)

HOW? Set numerator = 0 and solve for x

y intercept $(0,\frac{-24}{16})=(0,-4.5)$

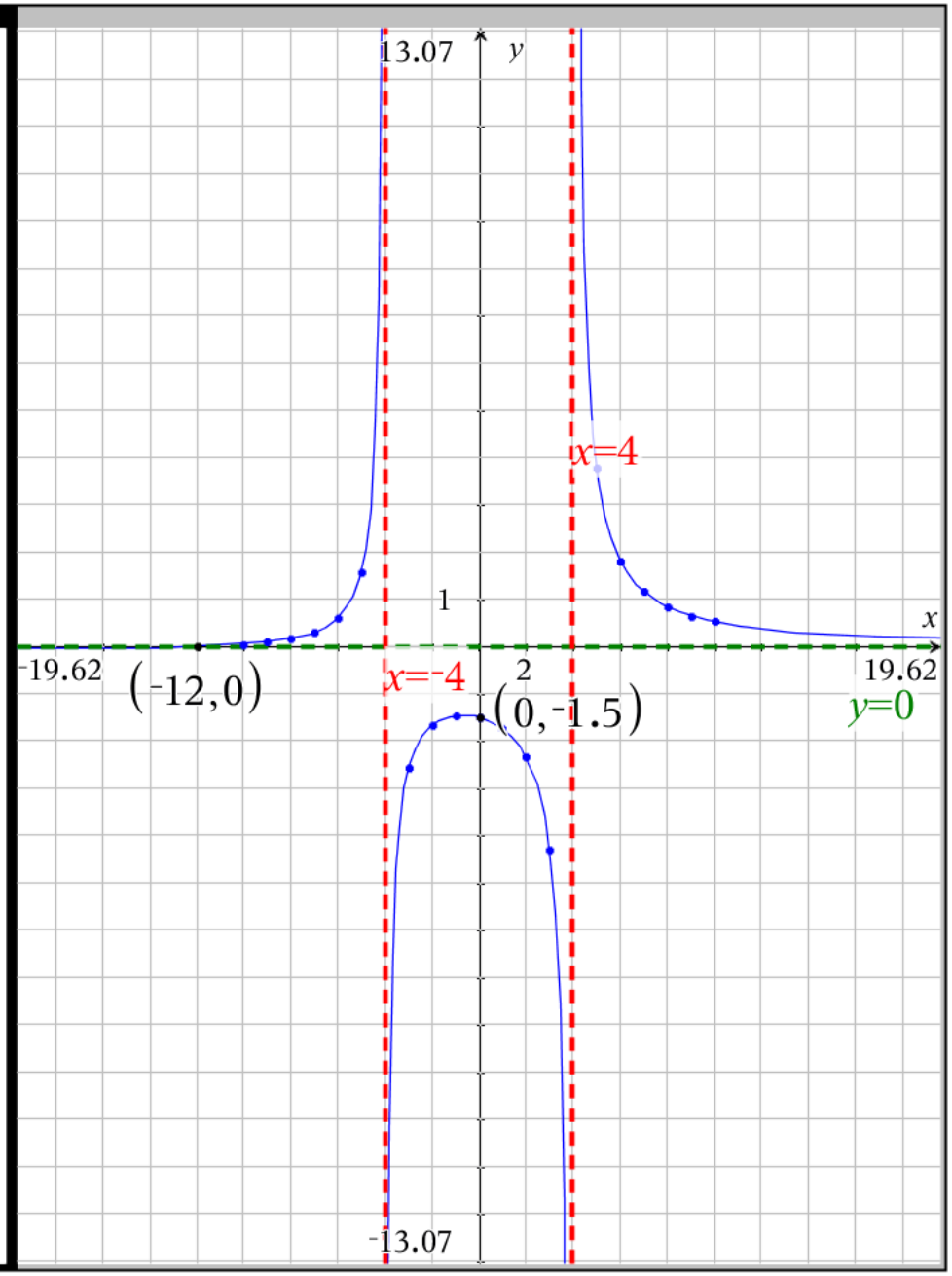
HOW? Set x = 0 and evaluate h(0)

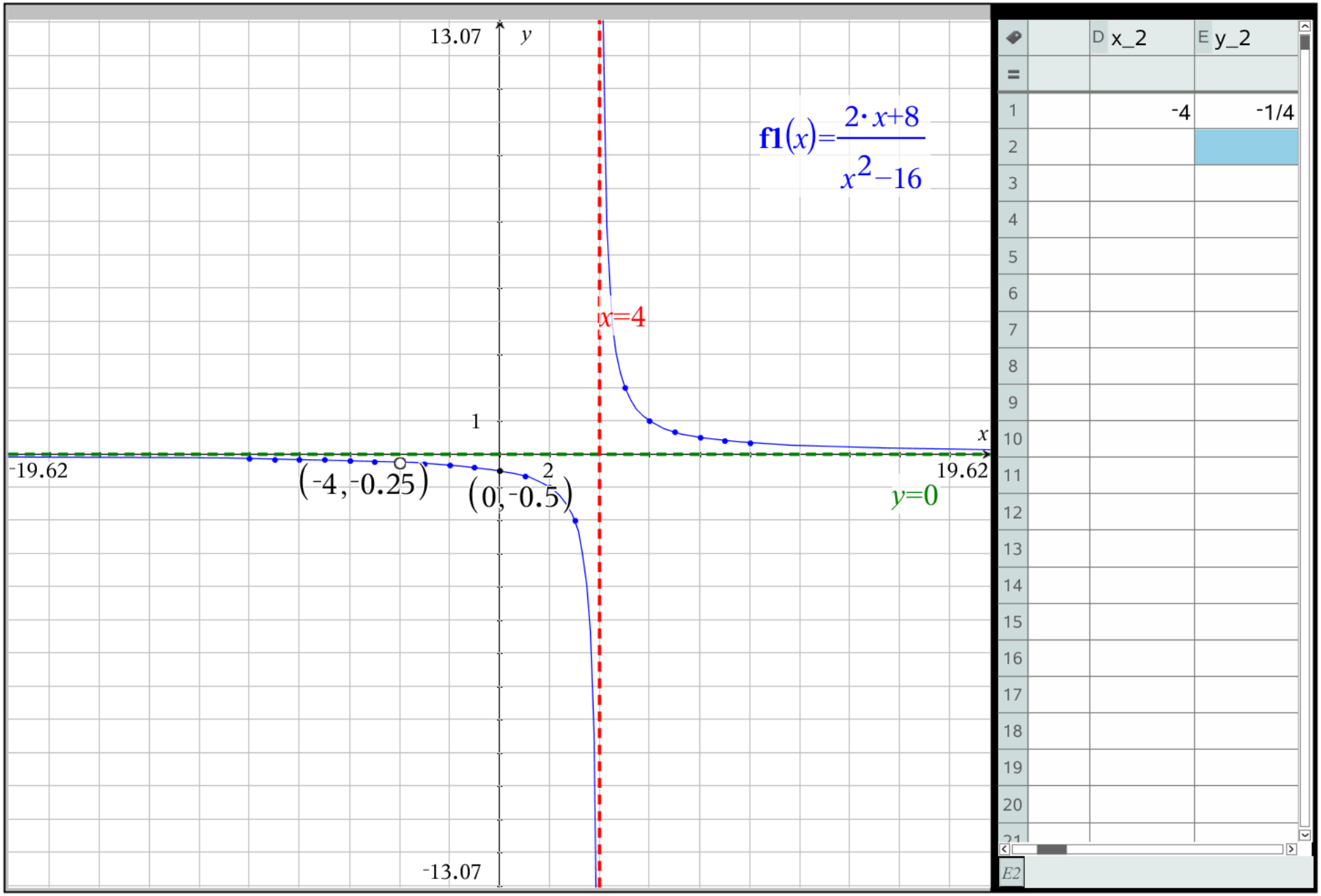
vertical asymptote at x =4 and x = −4

HOW? Set denominator = 0 and solve for x

horizontal asymptote at y = 0

HOW? when degree of numerator is less than the degree of the denominator, the x axis is the horizontal asymptote




13.07
y
f1(x)=(2·x+8)/(x^2−16)
x=4
1
x
-19.62
2
19.62
(-4,-0.25)
(0,-0.5)
y=0
-13.07
D x_2
E y_2
1 -4 -1/4
E2

$j(x)=\frac{2x+8}{x^2-16}=\frac{2(x+4)}{(x+4)(x-4)}=\frac{2}{x-4}$ with $x\neq-2$

HOLE OCCURS!

x intercept NONE

WHY?

reduced version has no x in numerator

y intercept $(0,\frac{-8}{16})=(0,\frac{-1}{2})$

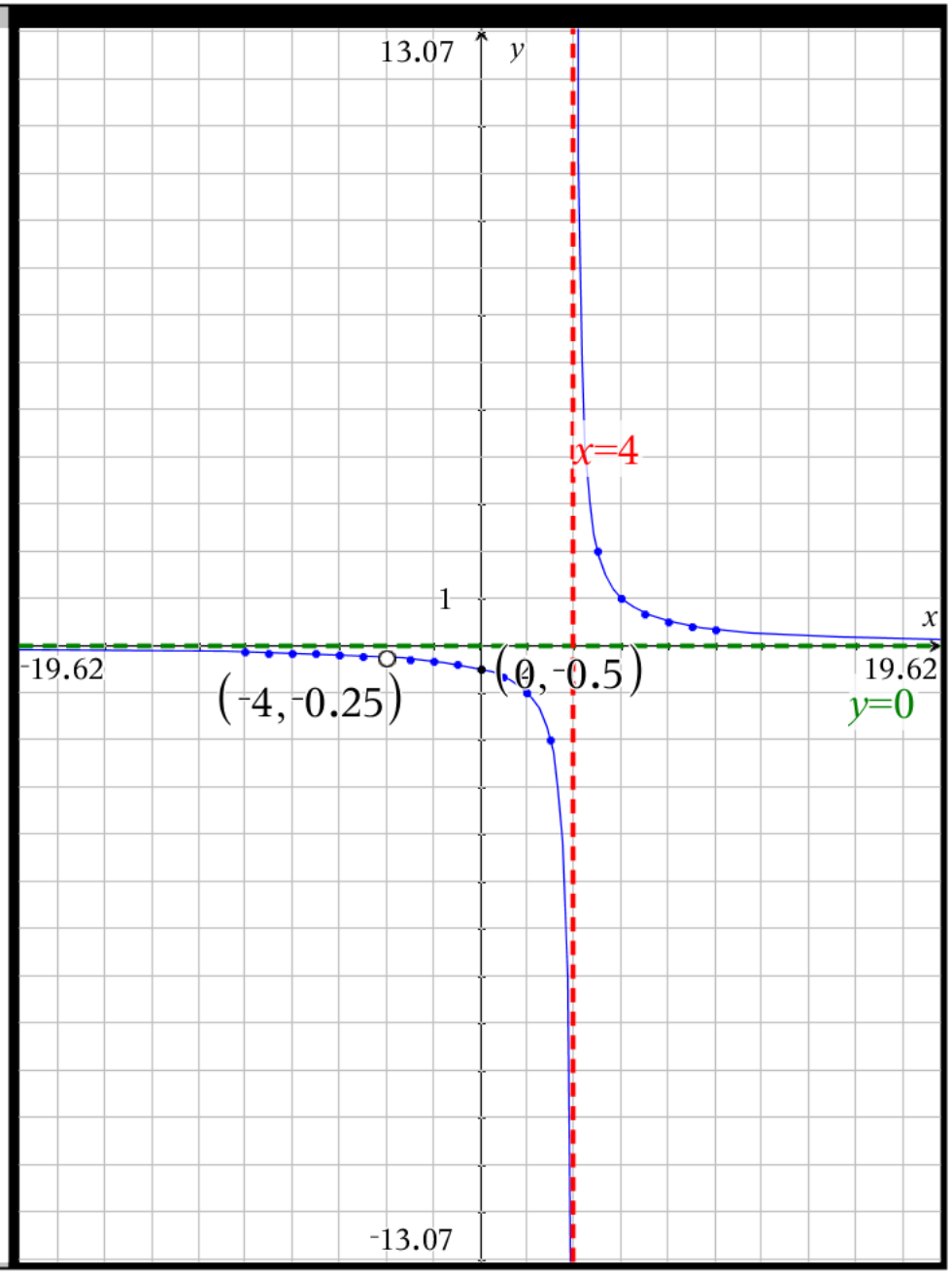
HOW? Set x = 0 and evaluate j(0)

vertical asymptote at x =4 and x NOT at −4

HOW? Set denominator = 0 and solve for x

horizontal asymptote at y = 0

HOW? when degree of numerator is less than the degree of the denominator, the x axis is the horizontal asymptote



$j(x)=\frac{2x+8}{x^2-16}=\frac{2(x+4)}{(x+4)(x-4)}=\frac{2}{x-4}$ with $x\neq-4$

HOLE OCCURS!

1) since we cancelled x+4

2) we set x +4 = 0

3) solve for x and we get x = −4

THIS IS X of HOLE

4) replace x = −4 into SIMPLIFIED rational function to find y coordinate of hole

$$\frac{2}{-4-4}=\frac{-1}{4}$$

5) HOLE $(-4,\frac{-1}{4})$